

120 and 220 Rolled X-Ray Films for Medium Format Cameras

About six years ago I began experimenting with the use of X-ray films. In the beginning I cut 8X10 inch sheets into 4X5 inch parts. The development process was by the "inspection method". This worked ok, however, as I capture over 6 to 12 exposures, this was very time consuming. In 2022 I reformulated a developer named "Ansco-30". I did this because I wanted to do a "tank develop process" and to have the time of that development to be 4 to 8 minutes (depending on the temperature of the formula solution). And because I had a 4X5 twelve negative holding tank, I wanted to do a total of 12 as a batch process. I did succeed at doing this. However - That was not enough.

Like many other photographers I have a whole "gaggle" of different cameras. One of my favorites was a Minolta "Autocoid" (6mm X 6mm) - and a Mamiya M-645 (6mm X 4.5mm) Medium Format Camera. Being that the ISO of X-ray film (Fuji HR-U) was that of from 50 to 100, I know I could hand-hold the camera at 1/30th of a second without blurring from "camera shake". Plus - with my reformulated "Ansco-30/JK" that I used for the 4X5 tank process, I knew full well that it would work in the spiral roll film tank. All that I had to do was to cut the X-ray film into 120 size sheet-strips and tape them together.



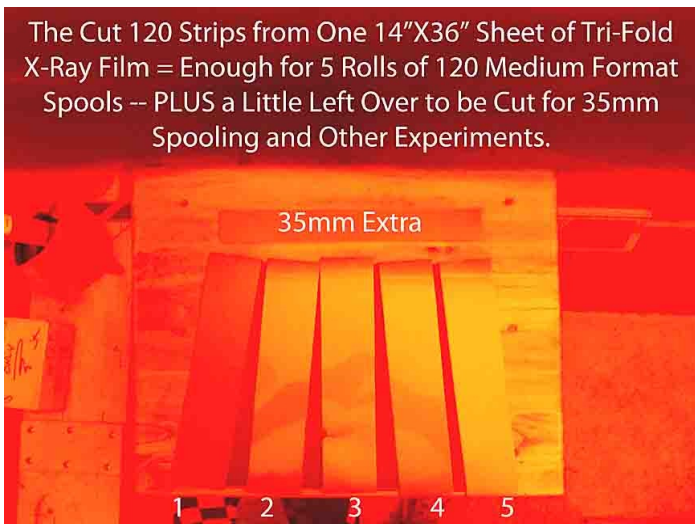
Above^ - Is a box of 25 each Tri-fold Film



And Here^ - Is one unfolded Sheet

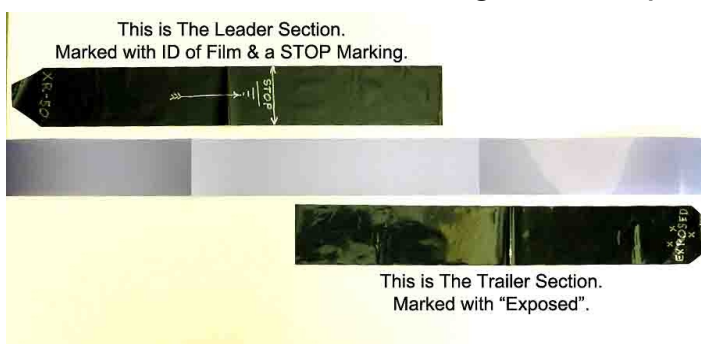
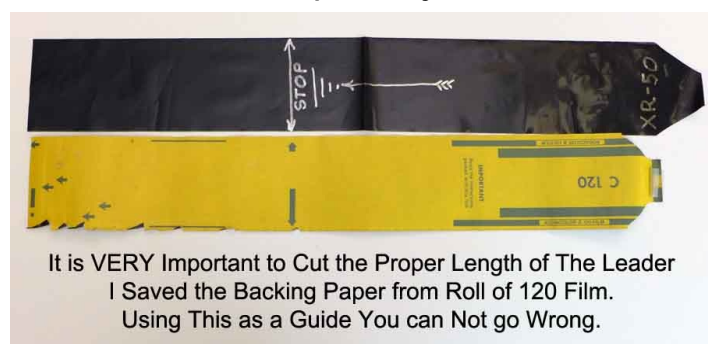
Buy a box of 25 Tri-Fold Fuji HR-U film. (I buy mine on eBay from anywhere from \$50.00 to \$70.00 U.S.D. Some go for more - (Just get the best deal you can).

With a good Safelite in your darkroom, open the box and remove one Tri-Fold Sheet. When cutting, use soft CLEAN cotton gloves. With your paper cutter - it is advisable to have a soft cotton cloth on the cutting board to help prevent scratches. Keep the Tri-Fold sheet folded, and align the folded part on the top of the cutter board stop at the top of the board. Make your first cut. Sometimes this cutting must be done in two parts - cutting half of the length. And reversing to match the first cut to the second half.



After cutting the sheets of X-ray film you desire to do, place them in a light proof box. The next thing to do is to cut the leader and trailer from saved black plastic bags that you have saved from a box of photo print paper. (Oh! You did not SAVE any?)..... Well - Now you must use thinner black plastic 4 mil bags to use as leaders and trailers. And it will work - However - these are much more flimsy and a little more difficult to handle. So do keep your unused plastic black bags from photo papers for future use.

The next step is to join the Leader and the Trailer to the Film using Clear Tape.



On the Leader (first section BEFORE the film is located) Mark a LINE as where to STOP winding in the film. Doing this assures that the First exposure frame is in the correct alignment with the Counter on the Camera. Using good quality CLEAR tape (Not Frosted) apply a full width of the film to the leader. – Do the exact same to the Trailer, and write EXPOSED as to be seen when it is finished with the roll.

Now comes the Rolling of the leader / film / and trailer onto a 120 spool.

This can be done with the RED Safelite on in the darkroom, with comfort. The One Thing that one must know is that you can NOT drop the spool once you begin. To do so might cause scratches on the emulsion of the film.

Take an empty 120 spool in one hand and feed the tapered end of the TRAILER into the slot of the spool. Do Not Tape the trailer. (It is a good idea to place a 2" piece of tape on the tapered end - and fold a "pull part" on the end of the tape. Back-Fold the tape to the reverse side of the trailer. (You will need this later after you are finished with this roll for holding the film roll securely.)

Now - Taking your time and gently roll the trailer onto the spool - realigning it from time to time to assure that there are no uneven or buckled areas of the plastic. When you get to the Film Section give it another light tug to have the leader in a good and even placement. Continue rolling the film on to the spool, and when you come to one of the "fold" places of the film - carefully roll it tight. (Remember Not to Drop the spool - The film is twice the thickness of panchromatic films and is very "springy".) Then continue rolling on the film till you come to the next fold area once again give it a good "tug".

When you get to where the leader is attached to the film - Once again check for proper alignment. Being that the plastic leader and trailer is a little over the films width it will assure a Light-Tight "seal" when 'riding' on the shoulders of the spool. Continue rolling the leader till you reach the "tapered" end. Place a 2" part of tape like you did on the trailer. Only this time let the tape go onto the roll of the spool. This will hold the spool from unrolling. (You do not really want that to occur.)

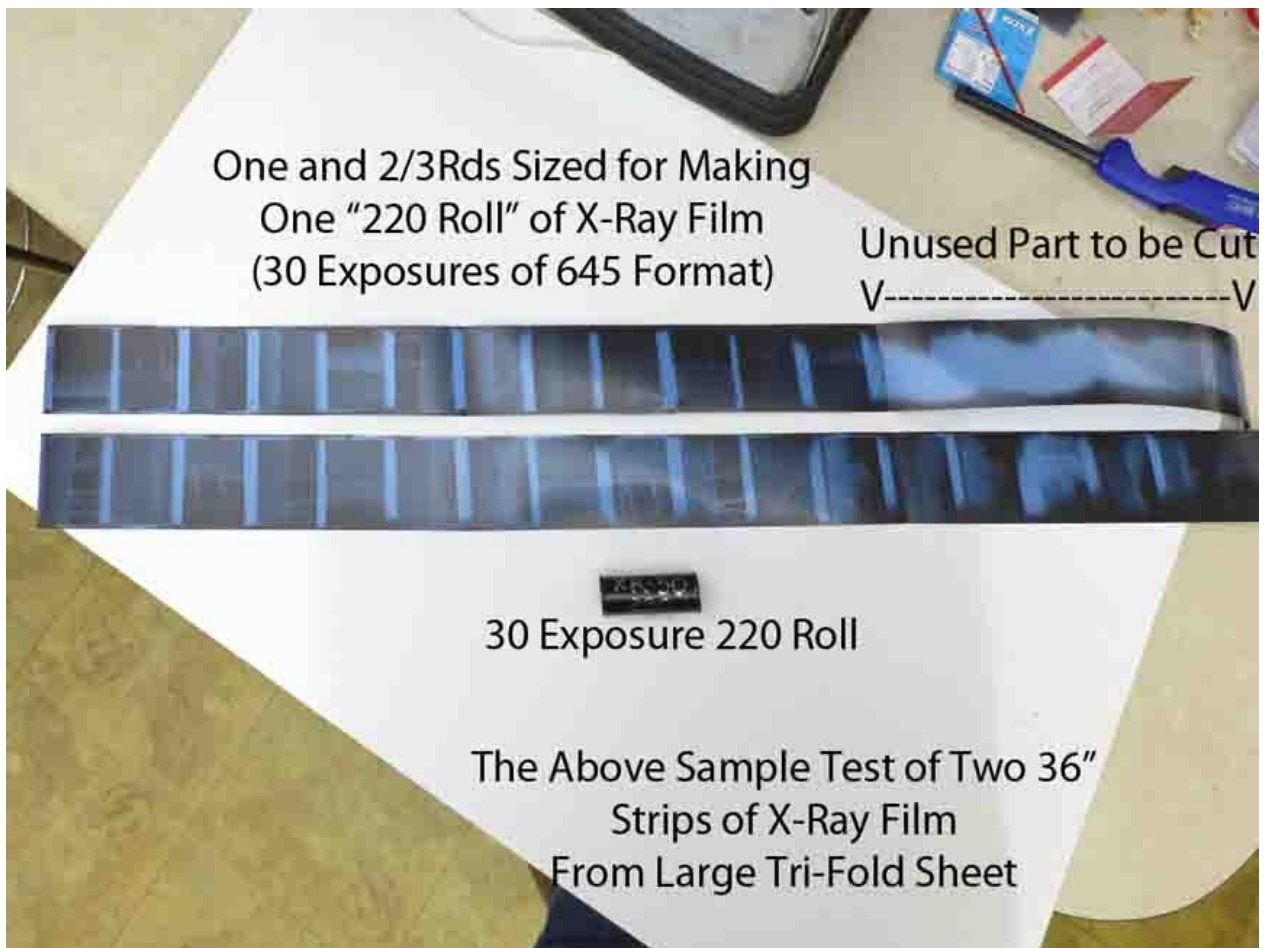
(REMEMBER - ALL of this MUST be done in the DARKROOM)



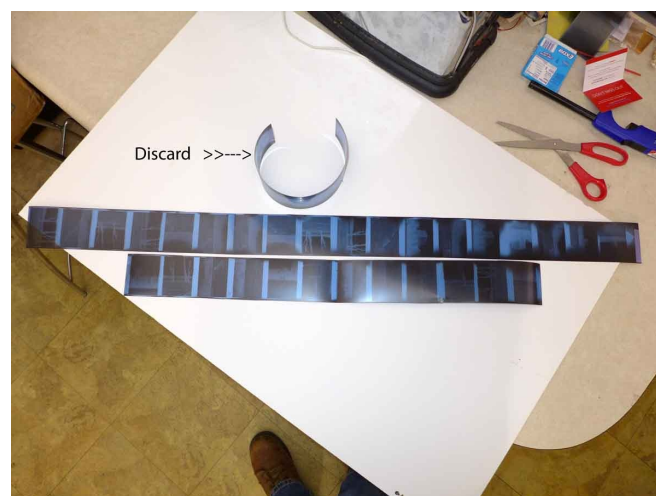
Above^ this how your finished roll of 120 should look like.

And - YES!! You can roll 220 size film on to 120 spools. This will take one more of the fold sections of the Tri-Fold film.

When I first rolled a 220 I used two cut segments of film - This OVERLOADED the spool somewhat. Each section was 36" long. I had exactly One Third of the film unused. So - when I made the next 220 roll I only place One More segment of Tri-Fold film taped to the three = making it good for a total 220 roll of film. (With the Mamiya 645 I had a total of 30 exposed negatives.)



The overloaded 220 had some light leaks, as you can see from the photo above. This is why I would use FOUR film segments to complete a good light protected roll of 220. (*The 6 segment roll was only an experiment that did not come out well.*)



Two of the cameras I use for 120 & 220 Rolled X-ray films.



Both of these medium-format camera have “Mechanical Stops”. No Little Red “window” on the rear of the box. Please remember that this rolling of 120 and 220 rolls are for these types of cameras. NOT the “little red window” types. There is NO BACKING PAPER.

This “rolling your own” can be a little difficult at first. And it can be very trying to the nerves. If you are a person who does not enjoy “tinkering” or if you have little patients, I respectfully suggest doing something a little less involved.

If you do not wish to purchase the “Tri-Fold” film, Fuji HR-U, also is available in boxes of 100 sheets of 8"X10", for different prices. On eBay they are often had for \$40.00 U.S.D. The cutting is much easier - but you will have to tape the all strips together. With a 6mmX6mm medium format camera (Minolta “Autocord” - 120 roll) I get 12 images. HOWEVER - I loose number 4 and number 8. So - in knowing this - I reshoot 4 as Number 5 // And 8 as Number 9... This gives me ten (10) usable negatives for printing out.

I have other PDF’s of my X-ray film experiments available as well. If interested send me an E-Mail:

jamesrkyle@gmail.com

And I shall send you all that I have on X-ray film use.

Thank You for reading. James R. Kyle, St. Louis, Missouri, U.S. of A.